



Maintenance and Operations Capability Statement

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Key Services

Maintenance and Operations Business Unit:

- Performance Assurance (e.g., Corrective Action Management, Assessments, Event Investigation)
- Work Planning and Project Controls
- Safeguards & Security
- Training
- Conduct of Operations
- Administrative Support
- Project Management
- Operations, Maintenance, and Construction supervision

Service Description

TerraGraphics provides Performance Assurance (PA) services in the areas of tracking, trending and analyzing data from the corrective action management system; tracking the status of corrective actions; performing management and specialty assessments, and leading event investigations and causal analysis. TerraGraphics' staff experience includes the development of metrics and key performance indicators utilizing the corrective action management system; investigation of issues and abnormal events, followed by causal analysis to develop corrective actions and prevent recurrence; and coordinating/leading multi-disciplined assessment teams to evaluate the effectiveness of programs, procedures, and on-going field activities. TerraGraphics' staff is comprised of former PA, Technical Support and Operation's managers; corrective action specialists; personnel qualified as assessment/event investigation team leads, and personnel trained in root and apparent cause analysis.

TerraGraphics provides Work Planning and Project Control services. Specifically, work planning includes clearly defining work scopes, identification of hazards and controls to mitigate identified hazards in a structured, concise work document. TerraGraphics' staff experience includes trained work planners to develop preventive, corrective, and troubleshooting work packages in the areas of operations, maintenance, and construction. The staff is comprised of senior planners for the preparation of electrical, mechanical, construction and structural work activities in high-risk environments (e.g., radiological, confined space, electrical, etc.). Project Controls include financial planning and analysis, scheduling, cost estimating, contract development, and earned value management. TerraGraphics' staff experience includes risk management, monthly financial and performance reporting and the change control process. The staff is comprised of project controls specialists with experience with Project Management applications, tools, and concepts.

TerraGraphics provides Safeguards & Security (SAS), Training, Conduct of Operations and Administrative services. Specifically, SAS includes security assessments, vulnerability assessments, self-assessments, interface with safety analysis groups, and design reviews of new material storage facilities. TerraGraphics' staff experience includes SAS program oversight, guidance, advocacy, optimization, and technical assistance. In addition, it includes analysis in the areas of blast effects on barriers, structures, containers and personnel; crater formation and blast fragments; and dispersion of toxicological and/or radiological materials. The staff is comprised of senior specialists, with over 50 years of combined experience, in safety analysis (e.g., material release, transport, and dose consequences), security vulnerability analysis, chemical terrorism vulnerability, project management, and emergency management. Training

includes attaining proficiency in each course taught, presenting the approved material, maintaining a learning environment, and providing instructional design support for new classes.

TerraGraphics' staff experience includes electrical safety, isolation boundary controls, field work supervision, electrical installations and maintenance, strong presentation skills, and liaison support to the National Training Center (NTC). The staff is comprised of highly experienced craft and field-knowledgeable personnel, with over 20 years of teaching experience in a variety of safety-related courses. Conduct of Operations (ConOps) consists of formal documentation, practices, and actions implementing disciplined and structured operations. It is implemented through facility policies, directives, plans and safety management systems. The goal is to minimize the likelihood and consequences of human fallibility or technical and organizational system failures. It provides concrete techniques and practices to implement the ISM Core Functions to develop and implement hazard controls, perform work within those controls and provide feedback. TerraGraphics' staff experience includes operational readiness and startup activities for various radioactive and hazardous waste projects, safety basis and regulatory compliance implementation, surveillance and routine activities, procedure compliance assessments, documentation reviews, and preventative/corrective maintenance of high hazard and general facilities. The staff, which provided oversight of ConOps and field activities, is comprised of former shift operations and shift managers, operation managers/engineers and field work supervisors; emergency preparedness specialists; procedure development specialists and operations support specialists; lock & tag technical authority, and safety basis compliance officer support.

Administrative Services include editing and processing of simple to complex documents that may contain text and numeric tables, including scientific data, figures, and graphics. Document processing includes formatting and comment incorporation. TerraGraphics' staff experience includes configuration control of documents with multiple chapters and appendices within collaborative development space (e.g., SharePoint, IDMS, etc.). In addition, staff involvement with workers, subject matter experts, and management ensures a quality product. The TerraGraphics' staff is comprised of technical publications specialists, with over 35 years of experience, specializing in the organization, writing, and editing of complex documents.

Example Projects

Performance Assurance (PA) Services

Production Operations PA Support – TerraGraphics personnel performed over 10 event investigations in 2016, with several of these events requiring causal analysis and development of corrective actions. Specific examples included Event Investigation Report (EIR) EIR-2016-009, *Investigation of AP-Farm Cabinet Odor AOP-015 Entry*, EIR-2016-018, *Investigation of Unexpected Electrical Hazard SY241-VTP-ENCL-301 Enclosure*, and EIR-2016-024, *Investigation of AOP-015 Entry at 702-AZ, Room 105*. TerraGraphics personnel has led or participated in management and specialty assessments such as FY2013-OPS-M-0123, *Management Assessment for Tank Operations Contractor – Conduct of Operations*, FY2012-OPS-M-0186, *Management Assessment for Tank Operations Contractor – Technical Safety Requirements*, and a Lean Specialty assessment of the Laundry Handling Process. In addition, corrective action management support (i.e., causal analysis, corrective action development, and issuance) was provided to the SY Area Team and the Effluent Treatment Facility (ETF) organization.

Retrieval Operations/Projects PA Support – TerraGraphics personnel performed several event investigations in 2016, including EIR-2016-010, *Investigation of AW-A Valve Pit AOP-015 Entry*, EIR-2016-019, *Investigation of AOP-015 Entry from East of AX-Farm to AP-Farm* and EIR-2016-048, *AX-04C Pit Contamination Event – Workers Found with Low-Level Skin and Modesty Clothing Contamination*. For EIR-2016-048, which was highly publicized within the Department of Energy and local news agencies, TerraGraphics personnel completed the causal analysis and developed the corrective actions.

Work Planning and Project Control Services

Central Work Control Support – TerraGraphics personnel prepared corrective and preventative maintenance work packages, across the central plateau, in the areas of fire system maintenance and central water supply and septic systems. In addition, personnel have supported T-Plant in preparation to receive sludge being removed from K-Basin.

Project Integration Support – TerraGraphics personnel developed and maintained the company Risk Management Program which included procedures, desktop guides, and process flow diagrams. Staff provided cost/benefit analysis for risk mitigation buy-down, monthly reports, and reviewed the integrated priority list (IPL). In addition, personnel worked with the customer in the development, maintenance, and improvement of the change control process.

Safeguards & Security (SAS), Training, Conduct of Operations and Administrative Services

SAS – TerraGraphics personnel supported vulnerability assessments, Joint Conflict and Tactical Simulations, annual local law enforcement exercises and the site-wide emergency management program. In addition, personnel contributed to accident analyses on the following subjects: (1) core melt accident phenomenology, fission project release and transport out of containment and dose consequence analysis for Big Rock Pint Plant PRA and (2) comprehensive seismic accident analyses for the Plutonium Finishing Plant.

Training – TerraGraphics personnel has supported the following training courses: electrical safety, hazardous waste, lockout/tagout, asbestos worker and respiratory training. Instructional design support was provided to the National Training Center (NTC) to deliver adult interactive safety and health training materials. In addition, the Building Trades program liaison supports the determination of equivalency of non-Hanford Site workforce training; works with the NTC on benchmarking and evaluating other sites, and fosters discussions with management and labor representatives regarding site-wide training standards.

Conduct of Operations – TerraGraphics personnel has performed and/or managed the development of technical procedures, training, emergency drills, waste transfers, ultrasonic testing of the double-shell tank annular space and review of technical surveillance datasheets for the Tank Operations Contractor. In addition, oversight is provided to the Hanford Fire Department Respiratory Services and Fire Extinguisher Services programs to ensure compliance with procedures and policies.

Administrative Services – TerraGraphics personnel has produced numerous reports for municipal, state, federal, and private entities such as the Air Force, Navy, U.S. Army Corps of Engineers, and Department of Transportation (DOT). Supporting editing services for a decommissioning document, license termination plan, and bid specification documents. In addition, support to the Hanford Training Center on training packages, presentations and lesson plans, both hard and electronic copy.

Company Data:

| Office Locations | Contracting Specifics | |
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| <ul style="list-style-type: none"> • Pasco, WA (Principal Office) • Richland, WA • Moscow, ID • Kellogg, ID • Boise, ID | <ul style="list-style-type: none"> • NAICS Service Codes: 541330 – Engineering 541370 – Surveying and Mapping 541620 – Environmental Consulting 541690 – Other Scientific and Technical Consulting Services 541990 – All Other Professional, Scientific, and Technical Services 562910 – Remediation Services 611430 – Professional and Management Development Training | <ul style="list-style-type: none"> • HUBZone Certified #15952 • DUNS #623036621 • CAGE Code 2S723 • Protégé firm to Washington River Protection Solutions, a DOE Tank Operations at Hanford |